



## **Vestmannaeyjar a birth of volcanic Archipelago.**

Armann Hoskuldsson (1), Richard Hey (2), Neal Driscoll (3), and Árni Vésteinsson (4)

(1) University of Iceland, Institute of Earth Sciences, Reykjavík, Iceland (armh@hi.is), (2) University of Hawaii Manoa, (3) Scripps Institute of Oceanography, (4) Landhelgisgæsla Íslands

The Vestmannaeyjar volcanic system is located on the seaward extension of the East Volcanic Zone and is characterized by alkalic magmatism. Approximately 80 volcanic edifices are known within the 900km<sup>2</sup> covered by the system, of which 18 rise above sea level as skerries and islands. Vestmannaeyjar is a young volcanic system that came to life <100 000 years ago. The islands forming the archipelago are much younger, as they were all formed in the past 10–20 000 years and most by emergent submarine eruptions similar to the 1963–7 Surtsey eruption. However, the largest island, Heimaey, is a central volcano in the making and is constructed from tight cluster of basaltic volcanoes that were produced by series of eruptions over the past 15 000 years. The eruption of more-evolved mugearite to Hawaiite magma in the 1973 Eldfell eruptions confirms the status of Heimaey as a juvenile central volcano. Consequently, the geology of Heimaey reveals a more diverse style of volcanism than is found on the other islands, including the products of subaerial basalt and intermediate mixed eruptions, in addition to explosive hydromagmatic eruptions. Observations made during the 1963–7 Surtsey and 1973 Eldfell eruptions show that the main magma-holding reservoir of the Vestmannaeyjar system is located at 25–30 km depth and that it supplies the system with basaltic magma. In this presentation we shall present bathymetry work done on the archipelago that reliefs complex periodic volcanism and its relation to ice retreat following the last LGM.